Appendix 5- Aquatic and Terrestrial Incidents with Methyl Parathion

Aquatic Methyl Parathion Incidents							
No./ Date	Species	Effect/#	Crop	St	Residue Analyses		ChE
					Item	Conc. (ppm)	
1/ 8/20/73	Fish	17000	cotton	AL	None	None	None
According to “summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a large fish kill in Alabama. Methyl and Guthion had been applied aerially to adjacent cotton fields the week of the kill and are considered to have been the cause of the incident.							
2/ 8/14/72	Fish	unknown	cotton	AL	None	None	None
According to “summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a fish kill in Alabama. Following aerial application of methyl parathion and endrin to cotton, an unknown number of fish was killed. Residues of toxaphene and endrin in the fish were 14.0 and 0.15 ppm, respectively.							
3/ 8/27/73	Fish	200,000	Cotton	AL	lake water	1.6 ppb	None
According to “summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a fish kill in Alabama. All of the water samples taken from the lake revealed the presence of endrin (0.58 ppb) and methyl parathion (1.6) ppb							
4/ 7/22/74	Fish	6600	NR	AL	None	None	None
According to “summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a fish kill in Alabama. The information is that methyl parathion and endrin were involved in the fish kill. No confirmatory data were given.							
5/ 8/9/74	Sunfish Smallmouth buffalo Carp Bluegill	28,300	Cotton	AL	None	None	None
According to “summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a fish kill in Alabama. During the investigation, the investigators observed the aerial application of pesticide to cotton. It was reported that prior to the fish kill there had similar applications made while it was raining. Endrin was found in the water samples and also in the carp.							
6/ 7/73	Minnow Shiner	Unknown	Cotton	AR	None	None	None

Aquatic Methyl Parathion Incidents							
No./ Date	Species	Effect/#	Crop	St	Residue Analyses		ChE
					Item	Conc. (ppm)	
According to “summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a fish kill in Arkansas in July 1973. Aerial application of pesticides (presumably one or more of those included in the title of this report) to a nearby cotton field was presumed to be the cause.							
7/ 8/23/74	Shiner Catfish Minnow	Unknown	Cotton	AR	None	None	None
According to “summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a fish kill in Arkansas in on August 23, 1974. A commercial catfish farm suffered the death of fish in four of their ponds. Reportly, the nearby cotton fields had been treated during the same period.							
8/ 8/5/91	Catfish	Unknown	Cotton	LA	Water	Negative	None
The fish kill occurred in the private catfish pond. Investigation, made by DEQ and LAAF, revealed a cotton field, west of the pond, which had been treaed with pesticides 8-3-91. Water samples, taken at investigation 8/5/91, were negative for suspected insecticides Sulprofos and Methyl parathion. There were low DO readings in areas of the pond and algal bloom was evident by brilliant green coloring in areas of the pond, therefore the investigators felt trhat algal bloom caused the fishkill.							
9/ 7/25/94	Catfish shad, bowfin buffalo, gar drum,	2395	Cotton	LA	Water Sediment Fish	All Positive for both chemicals	None
Curacron and methyl parathion had been applied to a large acreage of cotton, but a heavy rain followed and the runoff exited into Crews Lake, then Little Lake Lafourche, and ultimately Lake Lafourche. Varying species of shad, bowfin buffalo, gar drum, and catfish were killed and the deaths were attributed to profenefos and methyl parathion (based on analyses of water, sediment, and fish by the LSU School of Veterinary medicine but no datat were included in the report on which but no data were included in the report on which this narrative is based.							
10/ 8/2/91	Various species	Unknown	Cotton	LA	water Cyanizine	Negative 5.33 ppb	None
Fish kill on Crew Lake was investigated by DEQ and LDAF. Multiple types of dead fish were observed. DO levels were low, 1.7-2.8. Water samples were negative for methyl parathion and 5.33 ppb for cyanizine, a level insufficient to cause fish mortality. LDAF determined that low DO was responsible for the fish mortality.							
11/ 7/31/91	fish	Unknown	Cotton	LA	None	None	None

Aquatic Methyl Parathion Incidents

No./ Date	Species	Effect/#	Crop	St	Residue Analyses		ChE
					Item	Conc. (ppm)	
acertified applicator aerially treated cotton fields with methyl parathion and endosulfan on 7/27/91. ?these pesticides were applied according to its labeled concentration and recommendation. The application followed 1.39 inches rainfall, which caused runoff to Joe's Bayou as the fields treated are located on both sides of the Bayou. The Louisiana Department of Agriculture & Fishery (LDAF) jointly investigated this incident. The water samples taken from the Bayou were tested and detected the presence of methyl parathion among other pesticides. LDAF concluded that both of these pesticides. LDAF concluded that both of these pesticides are what killed the fish. Concentrations of profenofos in the water were only 0.62 and 1.08 ppb, but profenofos concentrations in shad muscle were 78.2 and							
12/ 8/6/96	Shad Carp	Thousands	Cotton	LA	methyl parathion	0.12 ppb	
					atrazine	2.07 ppb	
					prometryn	0.64 ppb	
					cyanazine	0.34	
					norflurazon	0.19	
					metolachlor	0.57	
					profenofos	1.08	
An extensive fish kill took place in Crew Lake on August 6, 1996. A variety of pesticides) was found in the waer but the low dissolved oxygen content may also have been a factor in the deaths of the fish. Concentrations of profenofos in the water were only 0.62 and 1.08 ppb, but profenofos concentration in the shad muscle were 78.2 and 363 ppb, and conentrations in the lever were 1`00 and 1181 ppb. In the judgement of Dr. Jay Means, coordinator of the fish kill investigation team at LSU, profenofos was responsible for the fish kill. Another factor, however, was the low dissolved oxygen content (0.8 to 3.0) which also be toxic.							
13/ 4/29/81	Bluegill	hundreds	Unknown	MO	None	None	None
Misuse- No mention of weather conditions was made in the report. Evidently it was a case of an aerial spray entering the water. Methyl parathion was sprayed, and there was a fish kill in a neighboring pond near the town of Rosendale, Mo. No residue analysis was provided. The owner may even have been the one doing the spraying, and the concern was the status of the home water supply.							
14/ 8/1/95	Fish	240,000	Cotton	AL	None	None	None

Aquatic Methyl Parathion Incidents							
No./ Date	Species	Effect/#	Crop	St	Residue Analyses		ChE
					Item	Conc. (ppm)	
More than 240,000 fish were killed along a 16 mile stretch of the Big Nance Creek that flows into the Tessessee River. A pesticide product (made by FWC Corp. of Philadelphia), containing methyl parathion and endosulfan, was sprayed by airplnes and tractor-type applicators on about 10 farms in early August. Shortly thereafter, heavy rains washed the pesticide product into the creek. Reports indicate that the spraying was done within the guidelines on the label but the results show that the provisions on the label should be revised. The product contains both endosulfan and methyl parathion, but only the results of the endosulfan analyses were cited in assessing the cause of the fish kill. The endosulfan concentration was high enough to kill fish. Methyl parathion concentration is known. The Alabama Dept.of Environmental Management, the Departments of Agriculture and Industry, Public Health and Conservation and Natural Resources investigated the fish kill. They concluded that some of the fields where the pesticides were applied may be slightly closer to the Creek than the 300 feet specified. A warning to this effect is carried ont he leaflets distributed with the product but no mention of it is made on the label.							
15/ 4/5/80	Mullet Minnow Blue crab Oyster Mussel	Tomato	Not Reported	SC	Methyl parathion Hoaulover creek -Water	0.29 ppm	
					Endosulfan I and II Leadenwah Creek -Water	0.166 and 0.34 ppb, respectively	
					-Fish	0.140 ppb	
					Haulover Creek -Fish	0.5 and 0.16 ppb, respectively	
					Toxaphene Haulover creek -Water	3.5 to 1040 ppb	None
					-Mussels	0.44 to 2.64 ppm	
					-Oyster flesh	0.44 ppm	

Aquatic Methyl Parathion Incidents							
No./ Date	Species	Effect/#	Crop	St	Residue Analyses		ChE
					Item	Conc. (ppm)	
This fish and oyster kill took place in Leadenwah Creek (Wadmalaw Island) and Haulover Creek (Hwy 20) (both near Charleston,SC) over an extended period. Spraying took place on April 3, followed by rain on April4, and reported fish kills April 5; then spraying took place on April 12, followed by rain on April 13, and fishkills reported the same day. Because of the tidal nature of the creek, apparently there were situations in which carcasses were washed out to open water and, later, washed back. For these and other reasons it would be difficult to establish quantitative estimates of the numbers involved. All applications were aerial. The reported was issued by SC Wildlife and Marine Resources Dept.							
16/ 11/11/73	Fish	200,000	Ag Area	TX	None	None	None
According to “Summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a very large fish kill in Texas on November 11, 1973. There were 200,000 fish killed but particulars about the event were not available. For the purposes of this report it is assumed that DDT, endrin, or methyl parathion may have been responsible.							
17/ 8/17/74	Fish 90% Trout	500	Ag area	PA	Water	0.17 ppb	None
According to “Summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a fish kill in Pennsylvania on August 17, 1974. Of the 500 fish killed. approximately 90% were trout. A factor in the fish kill was that there were heavy rains following the application of pesticide to a field adjacent to a pond. Parathion was found in a water sample taken below the pond, at a concentration of 0.17 ppb. There was no analysis of the ish flesh included in the report.							
18/ 8/27/70	Mullet Perch Eel Shad	33,600	Soybeans	NC	None	Non	None
According to “Summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a fish kill in North Carolina on August 27, 1970. While spraying a soybean field with methyl parathion, an aerial applicator overflew a drainage canal causing the death of a wide variety and great number of fish.							

Aquatic Methyl Parathion Incidents

No./ Date	Species	Effect/#	Crop	St	Residue Analyses		ChE
					Item	Conc. (ppm)	
19/ 8/12/74	Goldfish	450	Not Reported	NC	Methyl parathion Grass and leaves surrounding the pond Toxaphene Grass and leaves surrounding the pond	 180 ppm 8.5 ppm	None
According to "Summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a fish kill in North Carolina on August 12, 1974. The victims were 450 goldfish, and toxaphene and methyl parathion were found in the grass and leaves near the fish pond.							
20/ 8/13/73	Fish	6400	Unknown	MO	Methyl parathion Endrin	25.0 ppb 2.3 ppb	None
According to "Summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a large fish kill in Missouri on August 13, 1973. The source of the contamination was unknown but, of four water samples, one contained 2.3 ppb endrin and 25.0 ppb methyl parathion.							
21/ 8/7/71	Non-game fish	15,000	Cranberries	MA	Methyl parathion -Fish and water Lindane -Fish and water	Detected Detected	None
According to "Summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a large fish kill in massachusetts on August 7, 1971. Cranberries nearby had been sprayed, and methyl parathion and lindane had been detected in both the water and the fish.							
22/ 8/5/71	Non-game fish	18,000	Not Reported	MA	None	None	None

Aquatic Methyl Parathion Incidents							
No./ Date	Species	Effect/#	Crop	St	Residue Analyses		ChE
					Item	Conc. (ppm)	
According to "Summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a large fish kill Massachusetts on August 5. 1971. Methyl parathion had been sprayed upstream 2 days before the kill and was suspected to be the cause of the incident; however, the reported indicates that low dissolved oxygen may have contributed to the problem.							
23/ 8/12/74	Golden Shiner	1,000,000	Cotton	LA	Methyl parathion Toxaphene -Fish Endrin -Fish	None 6.91 ppm 0.74 ppm	None
According to "Summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a large fish kill at a minnow farm in Louisiana on August 12, 1974. An adjacent cotton field had been sprayed with a mixture of endrin and methyl parathion. The aerial applicator would not admit using toxaphene but the fish samples contained 6.91 toxaphene and 0.74 ppm endrin.This was allegedly accidental misuse.							
24/ 9/12/74	Golden shiner	1,250,000	Cotton	LA	None	None	None
According to "Summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was a large fish kill in Louisiana on September 12, 1974. The report stated that 1,250, 000 golden were killed when there was a drift of methyl parathion into a minnow farm.							
25/ 8/4/73	Catfish Bream Trout	6,000	Known	GA	None	None	None
According to "Summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was fish kill in Georgia on August 4, 1973. Methyl parathion and endrin were thought to be the cause of the death.							
26/ 8/4/73	Fish 90% game, 10% other	8,900	Cotton	LA	None	None	None
According to "Summary of Reported DDT, Endrin, and Methyl Parathion Episodes Involing Fish from 1967 to February, 1975" there was fish kill in Louisiana on August 4, 1973. Aerial application of pesticides to adjacent cotton fields was the cause of the incident. The species of fish were not listed in the report but the breakdown was 90% game fish and 10% non-game.OPP EPA							

References:

(CDFG) California Department of Fish and Game
(DEDA) Delaware Department of Agriculture, Division of Consumer Protection

(ODWC) Oklahoma Department of Wildlife Conservation
(NYSDEC) New York State Department of Environmental Conservation
(USFWS) United States Fish and Wildlife Service
(USFWS-P) United States Fish and Wildlife Service, Patuxent Wildlife Research Center, Laurel, Maryland
(VADGIF) Virginia Department of Game and Inland Fisheries

Terrestrial Methyl Parathion Incidents						
					Residue Analysis	
No./ Date	Species	Effect/#	Crop	St	Item	Conc. (ppm)
1/ 1967	Ring-necked Pheasant	decline of population	Alfalfa	NV	None	None
"In 1967 there was a noticeable decline in the pheasant population in west-central Nevada. The decline was so severe that it resulted in a closed hunting season in Nevada's major pheasant areas of Lyon county (Smith and Mason Valleys). A breeding population peak was reached in 1966 which was followed by a sharp decline in the 1967 to 1968 and a slight recovery in 1969. It is indicated that from 1966 to 1`969 the most notable difference in the 1966 hunting season bag and the additional and concentrated emphasis upon spraying alfalfa fields, which in Nevada are primary pheasant nesting areas, with ethyl and methyl parathion. "Methyl parathion is used, through aerial application, for control of alfalfa pests and is generally applied between mid-May and mid-June. This correlates closely with the peak of the pheasant hatch in Nevada. Field and laboratory studies conducted in 1969 showed that the use of methyl parathion as a pesticide in alfalfa fields can result in substantial mortality (29%) of the 1-120 day old pheasants chicks under minimum exposure conditions" (NDFG)MRID No.:44342001						
2/ 1982	Canada geese, other geese, ducks	2,050 37 100	winter wheat	TX	None	None
"In four incidents, 2110 wintering Canada geese (2,050 at playa lakes), 37 other geese and , in one incident, 100 ducks, were killed by parathion or parathion/methyl parathion ir were suspected to have been killed by parathion. Wintering bald eagles (Haliaeetus leucocephalus) have been observed feeding on geese thought to have been died from parathion poisoning. Two golden eagles (Aquila chrysaetos) were observed feeding on carcasses of geese killed in Swisher County." (Flickinger et al. 1991)(MRID No.: 44342002)						

2/ 5/15/90	Peregrine falcon (endangered species)	1	Unknown	VA	Methyl parathion	gizzard 0.072 ppm
						crop 1.18 ppm
					Dieldrin	gizzard 0.395
						crop 0.355
					Chlordane	crop and gizzard 0.038
						intestine 0.032
A sub-adult male peregrine falcon was found in a debilitated condition and died. A necropsy showed that the bird had a broken neck but the analysis of crop, gizzard, and intestine showed the presence of methyl parathion, dieldrin, and degradates of DDT and chlordane the probably contributed to its death.(VDGIF)						
3/ 7/11/90	Swallows	6	Barley	ND	Methyl parathion	0.043
					Ethyl parathion	0.65
Aerial application Clean Crop 6-3 (ethyl and methyl parathion) to barley went awry in that fog drifted towards a neighboring farmstead, killing swallows nesting over a doorway and possibly endangering the health of residents living there (strong odor/strange taste in mouth). Recorded temperature was 72 degrees F. The commercial applicator was found liable to a finding of misdemeanor spraying 960 acres out of 1110 total for control of armyworms. Product used was Clean-Crop 6-3 a flowable formulation applied a 0.75 to 1.0 lbs a.i./A. (NDDAPD)						
1/ 5-30-92	Praire chickens	3	Winter Wheat	MO	bird brain	N/A
The three dead praire chickens were found in connection with research on their habitats and movements. The radioed birds were in or near recently (may 22, 1992) treated winter wheat. The wheat was treated for armyworms with Paraspray 6-3 which contains a mixture of methyl and ethyl parathion.(NDDA)						

References:

(NDDAPD) North Dakota Department of Agriculture, Pesticide Division
(NDFG) Nevada Department of Fish and Game
(VADGIF) Virginia Department of Game and Inland Fisheries